

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the above-referenced application.

Listing of Claims:

Claims 1 – 2 (Cancelled)

3. (Currently amended) An RF package, comprising:

a multilayered dielectric substrate including first and second dielectric substrates, said multilayered dielectric substrate having a cavity in the second dielectric substrate where a semiconductor element is to be mounted on the first dielectric substrate within said cavity;

a feed-through for connecting an inside and outside of said cavity and comprised of a coplanar line disposed on said first dielectric substrate and an inner layer line disposed on the first dielectric substrate obtained by disposing said second dielectric substrate on said coplanar line, said coplanar line and said inner layer line sharing a signal conductor disposed on the first dielectric substrate;

metal members disposed at a connection interface between said coplanar line and said inner layer line on two sides of said signal conductor, and connecting first ground conductors of the coplanar line and the inner layer line on the first dielectric substrate to a second ground conductor disposed on a top surface of the second dielectric substrate, said first and second ground conductors being connected at an edge of the second dielectric substrate; and

a plurality of first via holes disposed in said first dielectric substrate and a plurality of second via holes disposed in said second dielectric substrate;

wherein said first ground conductors are disposed on an upper surface of said first dielectric substrate and arranged on two sides of said signal conductor to be away from each other at a predetermined distance;

~~said second ground conductor is disposed on said second dielectric substrate; and~~

~~said plurality of second via holes is disposed in said second dielectric substrate to~~ connect said first and second ground conductors to each other at positions away from said connection interface between said coplanar line and said inner layer line; and

wherein a distance λ from said connection interface between said coplanar line and said inner layer line to a center of one of said second via holes which is at an end nearest to said connection interface is represented by

$$\lambda < \frac{c}{2f\sqrt{\epsilon_r}}$$

where c, f, and ϵ_r respectively indicate a speed of light, a signal frequency, and a specific dielectric constant of said dielectric substrate.

4. (Currently amended) An RF package, comprising:

a multilayered dielectric substrate including first and second dielectric substrates, said multilayered dielectric substrate having a cavity in the second dielectric substrate where a semiconductor element is to be mounted on the first dielectric substrate within said cavity;

a feed-through for connecting an inside and outside of said cavity and comprised of a coplanar line disposed on said first dielectric substrate and an inner layer line disposed on the first dielectric substrate obtained by disposing said second dielectric substrate on said coplanar line, said coplanar line and said inner layer line sharing a signal conductor disposed on the first dielectric substrate;

metal members disposed at a connection interface between said coplanar line and said inner layer line on two sides of said signal conductor, and connecting first ground conductors of the coplanar line and the inner layer line on the first dielectric substrate to a second ground conductor disposed on a top surface of the second dielectric substrate, said ground conductors being connected at an edge of the second dielectric substrate; and

a plurality of first via holes disposed in said first dielectric substrate and a plurality of second via holes disposed in said second dielectric substrate;

wherein said first ground conductors are disposed on an upper surface of said first dielectric substrate and arranged on two sides of said signal conductor to be away from each other at a predetermined distance;

~~said second ground conductor is disposed on said second dielectric substrate; and~~

said plurality of second via holes ~~is disposed in said second dielectric substrate to~~
connect said first and second ground conductors to each other at positions away from said
connection interface between said coplanar line and said inner layer line; and

wherein said plurality of second via holes are arranged on two sides of said signal
conductor at a predetermined pitch w, and

a pitch λ_{p2} of said second via holes in a signal propagating direction is represented
by

$$\lambda_{p2} < \frac{c}{2f\sqrt{\epsilon_r}}$$

where c, f, and ϵ_r respectively indicate a speed of light, a signal frequency, and a
specific dielectric constant of said dielectric substrate.

5. (Currently amended) A package according to claim 4, wherein the predetermined pitch w
[[of]] between said plurality of second via ~~hole~~ holes in a direction perpendicular to the
signal propagating direction is indicated by

$$w < \frac{c}{2f\sqrt{\epsilon_r}}$$

6. (Currently amended) A package according to claim 4, further comprising:

a third ground conductor disposed on a lower surface of said first dielectric
substrate; and

said plurality of first via holes are disposed in said first dielectric substrate to
connect said first and third ground conductors to each other, said plurality of first via holes
being arranged on two sides of said signal conductor at the predetermined pitch w.

7. (Previously presented) A package according to claim 6, wherein a pitch λ_{p1} of said plurality of first via holes in the signal propagating direction is represented by

$$\lambda_{p1} < \frac{c}{2f\sqrt{\frac{\epsilon_r + 1}{2}}}$$

Claims 8 – 11 (Cancelled)

12. (Currently amended) An RF package, comprising:

a multilayered dielectric substrate including first and second dielectric substrates, said multilayered dielectric substrate having a cavity in the second dielectric substrate where a semiconductor element is to be mounted on the first dielectric substrate within said cavity;

a feed-through for connecting an inside and outside of said cavity and comprised of a coplanar line disposed on said first dielectric substrate and an inner layer line disposed on the first dielectric substrate obtained by disposing said second dielectric substrate on said coplanar line, said coplanar line and said inner layer line sharing a signal conductor disposed on the first dielectric substrate;

metal members disposed at a connection interface between said coplanar line and said inner layer line on two sides of said signal conductor, and connecting first ground conductors of the coplanar line and the inner layer line on the first dielectric substrate to a second ground conductor disposed on a top surface of the second dielectric substrate at an edge of the second dielectric substrate; and

a plurality of first via holes disposed in said first dielectric substrate and a plurality of second via holes disposed in said second dielectric substrate; and

wherein said metal members are metal plates projecting from a side of said second dielectric substrate extending beyond said connection interface in a direction toward said coplanar line.

13. (Cancelled)

14. (Currently amended) An RF package, comprising:

a multilayered dielectric substrate including first and second dielectric substrates, said multilayered dielectric substrate having a cavity in the second dielectric substrate where a semiconductor element is to be mounted on the first dielectric substrate within said cavity;

a feed-through for connecting an inside and outside of said cavity and comprised of a coplanar line disposed on said first dielectric substrate and an inner layer line disposed on the first dielectric substrate obtained by disposing said second dielectric substrate on said coplanar line, said coplanar line and said inner layer line sharing a signal conductor disposed on the first dielectric substrate;

metal members disposed at a connection interface between said coplanar line and said inner layer line on two sides of said signal conductor, and connecting first ground conductors of the coplanar line and the inner layer line on the first dielectric substrate to a second ground conductor disposed on a top surface of the second dielectric substrate at an edge of the second dielectric substrate; and

a plurality of first via holes disposed in said first dielectric substrate and a plurality of second via holes disposed in said second dielectric substrate; and

wherein edges of said metal members at said connection interface measuring a first length at said connection interface, said first length being larger than a diameter of at least one of: a portion of said plurality of first via holes in said first dielectric substrate, and a portion of said plurality of second via holes in said second dielectric substrate.

Claims 15 – 16 (Cancelled)